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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/060,148	02/01/2002	Yoshiyuki Ishii	Q67564	9744

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SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
WASHINGTON, DC 20037

EXAMINER

YAM, STEPHEN K

ART UNIT PAPER NUMBER

2878

DATE MAILED: 01/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/060,148	ISHII ET AL.	
	Examiner	Art Unit	
	Stephen Yam	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Objections*

1. Claims 1 and 6 are objected to because of the following informalities:

In Claim 1, line 10, "a light-transmissive sheet-like body" lacks proper antecedent basis, as the term is already defined in lines 1-2. Examiner recommends using "the light-transmissive sheet-like body", since it appears that Applicant is referring back to the same sheet-like body.

In Claim 6, the descriptions of the disposition of the aperture member are confusing. It is unclear which term the phrase "disposed on a side closer to said light detecting means" is modifying: the aperture member, the condenser lens, or both.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3 and 4 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 3, the position of multiple converging optical systems is described, whereas parent Claim 1 only teaches a single converging optical system. It is unclear how multiple converging optical systems are introduced from a single converging optical system.

Claim 4 is indefinite by virtue of their dependency on an indefinite claim. In addition, Claim 4 recites "said plurality of light detecting means" whereas the parent claims do not mention multiple light-detecting means. Furthermore, the light-detecting means is not claimed as within the converging optical system, so therefore even if a plurality of converging optical systems are claimed, only one light-detecting means exists, as presented in parent Claim 1.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Miranda US Patent No. 3,594,087.

Regarding Claim 1, Miranda teaches (see Fig. 2) an apparatus for detecting a light-transmissive sheet-like body (22) comprising a light source unit (10) for emitting illuminating light, a reflector (26) for reflecting the illuminating light, light detecting means (32) for detecting the illuminating light which is reflected by said reflector, and a converging optical system (12) for leading the illuminating light reflected by said reflector to said light detecting means, wherein a light-transmissive sheet-like body (22) placed between the light source unit and the reflector is detected based on information of said illuminating light which is detected by said light detecting means (see Col. 1, lines 39-52 and Col. 2, lines 53-62).

Regarding Claim 2, Miranda teaches the light detecting means comprising a two-dimensional area sensor, as inherently, every photodetector has a two-dimensional surface on which light impinges.

Regarding Claim 5, Miranda teaches a telecentric optical system for leading the illuminating light therethrough to the light detecting means (as the optical rays from the light source to the sheet-like body and from the sheet-like body to the photo-cell are parallel to the optical axis).

Regarding Claim 7, Miranda teaches (see Fig. 2) a half-silvered mirror (20) for leading the illuminating light emitted from said light source to said light-transmissive sheet-like body and leading the illuminating light reflected by said reflector to said light detecting means.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miranda in view of Nishiyama US Patent No. 4,511,246.

Regarding Claim 3, Miranda teaches the apparatus as taught in Claim 1, according to the appropriate paragraph above. Miranda does not teach a plurality of converging optical systems spaced from each other along the length of the light-transmissive sheet-like body. Nishiyama teaches (see Fig. 3) an apparatus for detecting a light-transmissive sheet-like body (23),

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comprising light source units (41a, 41b, 41c), a reflector (25), and a plurality of light detecting means (24a, 24b, 24c) (see Col. 2, line 57 to Col. 3, line 30), wherein the light source units and light detecting means are spaced along the length of the light-transmissive sheet-like body. It would have been obvious to one of ordinary skill in the art at the time the invention was made to space the components along the length of the sheet-like body as taught by Nishiyama in the apparatus of Miranda, to detect the length of the sheet-like body as taught by Nishiyama (see Col. 2, lines 11-13).

Regarding Claim 4, Miranda in view of Nishiyama teach the apparatus as taught in Claim 3, according to the appropriate paragraph above. Miranda does not teach a processing means for calculating the length of the light-transmissive sheet-like body from information from the plurality of light detecting means. Nishiyama teaches (see Fig. 6) a processing means for processing information obtained by the plurality of light detecting means for calculating the length of the light-transmissive sheet-like body (see Col. 7, lines 12-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the processing means of Miranda in the apparatus of Miranda in view of Nishiyama, to output a signal related to the length of the sheet-like body as desired by Nishiyama (see Col. 2, lines 11-13).

7. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miranda in view of Ushio et al. US Patent No. 6,489,624.

Regarding Claim 6, Miranda teaches the apparatus as taught in Claim 5, according to the appropriate paragraph above. Miranda also teaches a condenser lens (12, 30) and an aperture

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member (13 (mistakenly un-numbered in Fig. 2 but below lens (12) labeled as "Aperture"), 28). Miranda does not teach the condenser lens disposed on a side closer to the reflector and the aperture member disposed at a focal point of the condenser lens disposed on a side closer to said light detecting means. Ushio et al. teach (see Fig. 5) an apparatus with a light source unit (6) for emitting illuminating light, reflector (1) for reflecting the illuminating light, light detecting means (20) for detecting the illuminating light reflected by the reflector, and a telecentric optical system with a condenser lens (16) disposed on a side closer to said reflector, and an aperture member (17) disposed at a focal point of said condenser lens disposed on a side closer to said light detecting means. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the lens and aperture placements as taught by Ushio et al. in the apparatus of Miranda, to remove noise components such as dispersed and diffracted light, as taught by Ushio et al. (see Col. 11, lines 1-4).

Regarding Claim 8, Miranda teaches the apparatus as taught in Claim 1, according to the appropriate paragraph above. Miranda does not teach the light source and the converging optical system connected to each other by an optical fiber for leading the illuminating light source. Ushio et al. teach (see Fig. 13) an apparatus with a light source unit (connected to the end of (71)) for emitting illuminating light, reflector (76) for reflecting the illuminating light, light detecting means (82) for detecting the illuminating light reflected by the reflector, and a converging optical system (72, 74, 75, 77, 78, 79), wherein the light source and the converging optical system are connected to each other by an optical fiber (71) for leading the illuminating light. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the optical fiber as taught by Ushio et al. in the apparatus of Miranda, to confine the

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light between the source and the converging optical system to maximize the emitted intensity onto the sheet-like body for improved detection.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miranda.

Miranda teaches the apparatus as taught in Claim 1, according to the appropriate paragraph above. Miranda also teaches the light-transmissive sheet-like body made of a photosensitive material (see Col. 1, lines 11-14 and Col. 2, lines 71-73). Miranda does not teach the photosensitive material sensitive to visible light and the illuminating light having a wavelength of at least 850 nm. It is well known in the art that photosensitive materials such as photographic film are sensitive to visible light, and an infrared light source (750nm to 1 $\mu$ m wavelength) is used in a detector device to prevent interference from the visible light spectrum. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a film sensitive to visible light and an illuminating light having a wavelength of at least 850nm, to use photographic film sensitive to visible light and an infrared light source of at least 850nm in the apparatus of Miranda, to obtain accurate sheet-like body density measurements from the light-detecting means without interference from external visible light sources and still capture image information on the film (sheet-like body) from external visible light.



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*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Bruggeling et al. US Patent No. 5,260,564, teach an apparatus for detecting a light-transmissive sheet-like body with a light source unit, reflector, and light-detecting means wherein the sheet-like body placed between the light source unit and the reflector is detected by the light-detecting means.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (703)306-3441. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703)308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7724 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

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SY  
January 23, 2003

  
DAVID PORTA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800